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On 6-14-99

TOWNSEND and TOWNSEND and CREW LLP

By: Peter King

**PATENT**  
Attorney Docket No.: 10517-37US



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Volker Schmidt

Application No.: 08/836,369

Filed: May 13, 1997

For: TEMPERATURE-MEASUREMENT  
INSTRUMENT WITH DIFFRACTIVE  
OPTICS

Examiner: A. Hirshfield

Art Unit: 2859

**DECLARATION OF PETER KING  
UNDER 37 CFR §1.131**

**RECEIVED**

JUN 18 1999

TECHNOLOGY CENTER 2800

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, PETER KING, hereby declare that:

1. I am an employee of Raytek Corporation, the assignee of the above-referenced patent application, and have been continuously employed at Raytek since prior to September 17, 1993, the filing date of U.S. Patent No. 5,368,392 ("the '392 filing date"). At that time my title was Vice President of Engineering and my duties included supervising the development of new products.

2. Prior to the '392 filing date Raytek was developing a new product designated internally as SHARK. As evidenced by ATTACHMENT A, SHARK was to include a laser sighting device. William Menchine, an engineer employed at Raytek and project director for SHARK, developed the proof-of-concept prototype of the laser sighting device.

#2  
Dec. 1.  
Marsha  
4/25/99

3. Prior to the '392 filing date I observed the proof-of-concept prototype which included a He-Ne laser to illuminate the diffraction grating to produce a light intensity distribution for identifying and outlining the position and size of the measurement spot on the object of measurement by means of visible light. The prototype included a Raytek Raynger PM radiometer having a detector for receiving heat radiation emanating from the measurement spot of the object of measurement and an IR optical system for imaging heat radiation emanating from the measurement spot onto the detector. The radiometer was attached to an optical bench, with the laser and diffraction grating aligned so that a circle of laser light was visible on the object of measurement that circumscribed the energy zone defined by the IR optics of the radiometer.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: 5-4-99, 1999

  
Peter King

## ATTACHMENT A

**Status Report**

Project: "Shark"

Date:

From: Wm Menchine, project manager

Subject: Engineering feasibility study

The following summary is intended to identify tasks from the feasibility schedule that are substantially completed and those that are under active investigation. Active investigations are followed by current action items and task responsibilities as well as the percentage of the task remaining.

In general

**Electronics**

1. Circuit design: Status: 80% Completed

Block diagram of full system, power requirement analysis, preliminary evaluation of battery life and component requirements for competing battery options.

2. Component selection: Status: 70% Completed

Research A/D and D/A requirements and options, microprocessor family selection, motor and motor control component selection.

Action: selection of A/D and D/A, preliminary analog circuit design. (Yanmin)

3. Software: Status: 20% Completed

Flow chart software, estimate size of code, estimate software development requirements, investigate emulation systems.

**Optics design**

1. Design and testing: Status: 70% Completed

Preliminary optical designs and system analysis for LT, HT and other spectral ranges. Evaluation of LT lens performance Amstir vs Ge. Design of visible system.

2. High res. LT system evaluation: Status: 15% Completed

System analysis of optical requirements (mirror), prototype parts ordered and in house.

Action: Explore design options, preliminary system design. Fabrication of prototype. (Team)

3. Viewing system mock-up: Status: 75% Completed

Preliminary design completed. Optical components in house. Mechanical parts fabricated. Awaiting assembly and evaluation.

Action: Preliminary design of internal display and backlight, mock-up. (Gary)

4. Laser sighting options: Status: 40% Completed

Evaluate design options. Investigate multiple spot or ring possibilities.

Action: Continuing design effort with Lasiris and identifying technical options.

**System analysis**

1. Pyroelectric detector testing: Status: 75% Completed

Determination of Alpha constant for Pyroelectric detector through temperature range testing. Evaluation of fundamental noise and performance.

Action: Determine minimum sensor element and aperture sizes.

2. Two color investigation: Status: 50% Completed